

A study of sand stabilization in eastern Saudi Arabia

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Engineering Geology

Vol. 38, Issue.2-Jan, 1994

Abstract: Test results show that the addition of a cementing agent to a wind-blown sand (cohesionless material) with uniform size distribution produces a material with two strength components - that due to cementation or 'true' cohesion and that due to friction. The angle of internal friction for the treated sands is not much different from that of the untreated sand. The results also show that the drying process is essential in the development of cementation, especially when calcium carbonate is used as the cementing agent. Peak strength as well as initial tangent modulus values, increase with an increase in curing period, confining pressure, cement content and density. Residual strength values seem to be independent of all parameters other than the confinement and density; a behaviour commonly observed for uncemented sands. - from Author